**JOB DESCRIPTION**

<table>
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<tr>
<th><strong>Job Title:</strong></th>
<th>Post-Doctoral Research Assistant in Beam Instrumentation for HL-LHC</th>
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<tr>
<td><strong>Department / Unit:</strong></td>
<td>Physics / John Adams Institute for accelerator science</td>
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<tr>
<td><strong>Job type</strong></td>
<td>PDRA / Fixed term to 31/3/2020</td>
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<td><strong>Grade:</strong></td>
<td>7</td>
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<td><strong>Accountable to:</strong></td>
<td>Dr. Stephen Gibson</td>
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**Purpose of the Post**

The appointee will join the RHUL-CERN team and contribute to the development of an Electro-Optic Beam Position Monitor for the High Luminosity upgrade of the Large Hadron Collider at CERN.

**Key Tasks**

- Carry out research within the John Adams Institute for accelerator science at Royal Holloway Physics Department, by contributing to the development of novel beam instrumentation to monitor the crabbed rotation of proton bunches at the HL-LHC.
- Technical development of the electro-optical system including: Electromagnetic simulations of the transient field of particle bunch; Calculation of the optical response for EO-pick-up of various designs; Development of high bandwidth optical detection and readout systems.
- Provide appropriate guidance and training to graduate student(s) on the project, and act as a liaison between the CERN Beam Instrumentation group and Royal Holloway, John Adams Institute group.
- Contribute to the scientific objectives of the HL-LHC-UK project, including the publication of research results in conference proceedings (e.g. International Beam Instrumentation Conference / International Particle Accelerator) and peer reviewed journals (e.g. Physical Review Special Topics: Accelerators and Beams and Journal of Instrumentation).

**Other Duties**

Contribute to science outreach activities in the framework of HL-LHC-UK, and the Royal Holloway Centre for Particle Physics.

The duties listed are not exhaustive and may be varied from time to time as dictated by the changing needs of the College. The post holder will be expected to undertake other duties as appropriate and as requested by his/her manager.
The post holder may be required to work at any of the locations at which the business of Royal Holloway is conducted.

**Internal and external relationships**

The following list is not exhaustive but the post holder will be required to liaise with:

Dr. Stephen Gibson (John Adams Institute Deputy Director / HL-LHC-UK PI at RHUL)
Dr. Alessio Bosco and Dr. Gary Boorman (RHUL Physics Department)
Dr. Thibaut Lefevre and wider members of the Beam Instrumentation group at CERN.
Representatives of optics manufacturers relevant to the EO-BPM.